Chapter 15
GRE Interfaces Monitoring and Troubleshooting

This chapter summarizes the command-line interface (CLI) commmands you can use to monitor and troubleshoot GRE interfaces.

show interfaces (for GRE Interfaces)

Syntax
show interfaces gr-*fpc/pic/port* <brief | detail | extensive> <*interface-name*>
  <destination-class *destination-class-name*> <source-class *source-class-name*>

show interfaces gr-*fpc/pic/port* <brief | detail | extensive> <media>

show interfaces gr-*fpc/pic/port* <brief | detail | extensive> <statistics>

Description
Display status information about GRE router interfaces.

Options
none—Display information about all interfaces.

brief—(Optional) Display brief interface information.

detail—(Optional) Display detailed interface information.

extensive—(Optional) Display very detailed interface information.

destination-class *destination-class-name*—(Optional) Name of a logical grouping of prefixes that count packets having the destination address matching those prefixes. Whenever a destination class is specified, you must also specify a particular logical interface, not all interfaces.

gr-*fpc/pic/port*—Name of an interface.

media—(Optional) Display media-specific information about network interfaces.

source-class *source-class-name*—(Optional) Name of a logical grouping of prefixes that count packets having the source address matching those prefixes. Whenever a source class is specified, you must also specify a particular logical interface, not all interfaces.

statistics—(Optional) Display static interface statistics.

Required Privilege Level
view

Sample Output	show interfaces (standard) (for GRE Interfaces) on page 196
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Output Fields at a Glance Table 29 summarizes the information included in the output fields of each show interfaces command option for GRE interfaces. In this table, output fields are listed in alphabetical order. In Table 30, the output fields are listed in the order in which they are displayed.

Table 29: GRE Show Interfaces Output Field Summary

Options	Field Description
Physical Interface	
Extensive	ANSI LMI settings—Settings for link management can be either ANSI LMI settings or ITU LMI settings. ANSI LMI settings is the default. The format is ANSI LMI settings: *value, value… xx* seconds.
Extensive	Bucket Drops—Drops due to traffic load exceeding the interface transmit/receive leaky bucket configuration. The default is off.
Standard Detail Extensive	CHAP state—Displays the state of the challenge-handshake protocol during its transaction.
Extensive	Clocking—Reference clock source. It can be Internal or External.
Extensive	Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism.
All	Enabled—State of the interface.
All	Flags—Information about the physical device and interface.
Extensive	Framing errors—Sum of AAL5 packets that have FCS errors, AAL5 packets that have reassembly timeout errors, and AAL5 packets that have length errors.
Detail Extensive	Generation—A unique number for use by Juniper Networks Customer Support only.
Extensive	Giants—Frames received that are larger than the giant threshold.
Extensive	ITU LMI settings—Settings for link management can be either ANSI LMI settings or ITU LMI settings. ANSI LMI settings is the default. The format is ITU LMI settings: *value, value… xx* seconds
Extensive	Input errors—Input errors on the interface.
Standard	Input rate, output rate—Rate of bits and packets received and transmitted on the interface.
All	Interface index—Physical interface's index number, which reflects its initialization sequence.
All	LCP state—Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
Extensive	LMI Statistics—Statistics about link management, including a count of packets sent and received, and the time of the last activity.
All	Last flapped—Date, time, and how long ago the interface went from down to up.
Extensive	Link flags—Information about the link.
All	Link-level type—Describes the link layer type.
All	MTU—MTU size on the physical in terface.
All	NCP state—Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
Extensive	Output errors—Output errors on the interface.
Extensive	Physical info—Information about the physical interface.
All	Physical interface—Name of the physical interface.
Extensive	Runts—Frames received that are smaller than the runt threshold.
Standard Detail Extensive	SNMP ifIndex—SNMP index number for the physical interface.
All	Speed—Speed at which the interface is running.
Detail Extensive	Statistics last cleared—Time when the statistics for the interface were last zeroed.

Options	Field Description
Detail Extensive	Traffic statistics—Number and rate of bytes and packets received and transmitted on the physical interface.
All	Type—Encapsulation being used on the interface.
Logical Interface	
Detail Extensive	Destination class—List of the names of destination class usage (DCU) counters per family and per class for this interface. The counters display Packets and Bytes going to designated user-selected prefixes.
All	Encapsulation—Encapsulation on the logical interface.
All	Flags—Information about the logical interface.
Detail Extensive	Filters—Name of the firewall filters to be evaluated when packets are received or transmitted on the interface.
All	IP Header—IP header of the logical interface.
Detail	Local statistics—Statistics for traffic received from and transmitted to the Routing Engine. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
All	Logical interface, Index, SNMP ifIndex—Name of the logical interface, the logical interface's index number (which reflects its initialization sequence), and the logical interface's SNMP interface index number.
Detail Extensive	Policer—Policers to be evaluated when packets are received or transmitted on the interface.
Detail Extensive	RPF Failures: Packets: *xx*, Bytes: *yy*—The amount of incoming traffic (in packets and bytes) that failed a unicast Reverse Path Forwarding (RPF) check on this interface.
Detail Extensive	Source class—List of the names of source class usage (SCU) counters per family and per class for this interface. The counters display Packets and Bytes arriving from designated user-selected prefixes.
Detail	Traffic statistics—Total number of bytes and packets received and transmitted on the logical interface. These statistics are the sum of the local and transit statistics. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
Detail	Transit statistics—Statistics for traffic transiting the router. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.

Table 30: GRE Show Interfaces Output Field Summary in Order of Appearance

Output Field	Output Field Description
Physical Interface	
Physical interface	Name of the physical interface.
Enabled	State of the interface. Possible values are described in "Enabled" on page 10.
Interface index	Physical interface's index number, which reflects its initialization sequence.
SNMP ifIndex	SNMP index number for the physical interface.
Generation	A unique number for use by Juniper Networks Customer Support only.
Type	Encapsulation being used on the interface.
Link-level type	Encapsulation being used on the physical interface.
MTU	MTU size on the physical interface.
Clocking	Reference clock source. It can be Internal or External.
Speed	Speed at which the interface is running.
Flags	Information about the physical device and interface. Possible values are described in "Device Flags" on page 10 and in "Interface Flags" on page 11.

Output Field	Output Field Description
LMI settings	(Extensive output only) Settings for link management can be either ANSI LMI settings or ITU LMI settings. ANSI LMI settings is the default. The format is (ANSI or ITU) LMI settings: *value, value... xx* seconds, where *value* can be: n391dte—DTE full status polling interval (1..255) n392dce—DCE error threshold (1..10) n392dte—DTE error threshold (1..10) n393dce—DCE monitored event count (1..10) n393dte—DTE monitored event count (1..10) t391dte—DTE polling timer (5..30 seconds) t392dce—DCE polling verification timer (5..30 seconds)
LMI Statistics	(Extensive output only) Statistics about the link management. Input—Number of packets coming in on the interface (*nn*) and how much time has passed since the last packet arrived. The format is Input: *nn* (last seen *hh:mm:ss* ago). Output—Number of packets sent out on the interface (*nn*) and how much time has passed since the last packet was sent. The format is Output: *nn* (last sent *hh:mm:ss* ago).
LCP state	Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
NCP state	Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
Statistics last cleared	Time when the statistics for the interface were last zeroed.
CHAP state	Displays the state of the challenge-handshake protocol during its transaction. Not-configured—CHAP was not configured on the interface. Success—CHAP authentication was successful. Fail—CHAP authentication failed. Chap-Resp-received—Received response for the challenge sent, but not yet moved into the Success state. (Most likely with Radius authentication.) Chap-Resp-sent—Response sent for the challenge received. Chap-Chal-sent—Challenge sent. Chap-Chal-received—Challenge received but response not yet sent.
Last Flapped	Date, time, and how long ago the interface went from down to up. The format is Last flapped : *year-month-day hour:minute:second timezone* (*hour:minute:second* ago). For example, Last flapped : 2002-04-26 10:52:40 PDT (04:33:20 ago).
Traffic statistics	Number and rate of bytes and packets received and transmitted on the physical interface. Input bytes, Output bytes—Number of bytes received and transmitted on the interface. Input packets, Output packets—Number of packets received and transmitted on the interface.
Input rate, Output rate	(Standard output only) Rate of bits (in bbs) and packets (in pps) received and transmitted on the interface.
Input errors	(Extensive output only) Input errors on the interface. The following paragraphs explain the nonobvious counters: Errors—Sum of the incoming frame aborts and FCS errors. Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism. Invalid VCs—Number of cells that arrived for a nonexistent VC. Framing errors—Sum of AAL5 packets that have FCS errors, AAL5 packets that have reassembly timeout errors, and AAL5 packets that have length errors. Bucket Drops—Drops due to traffic load exceeding the interface transmit/receive leaky bucket configuration. The default is off. Giants—Frames received that are larger than the giant threshold. Runts—Frames received that are smaller than the runt threshold. Policed discards—Frames that the incoming packet match code discarded because they were not recognized or of interest. Usually, this field reports protocols that the JUNOS software does not handle, such as CDP.

Output Field	Output Field Description
Output errors	(Extensive output only) Output errors on the interface. The following paragraphs explain the nonobvious counters:
	Carrier transitions—Number of times the interface has gone from down to up. This number should not increment quickly, increasing only when the cable is unplugged, the far-end system is powered down and up, or a similar problem occurs. If it increments quickly (perhaps once every 10 seconds), then either the cable, the far-end system, or the PIC is broken.
	Errors—Sum of the outgoing frame aborts and FCS errors.
	Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism.
	Aged packets—Number of packets that remained in shared packet SDRAM for so long that the system automatically purged them. The value in this field should never increment. If it does, it is most likely a software bug or possibly broken hardware.
Logical Interface	
Logical interface, Index, SNMP ifIndex	Name of the logical interface, the logical interface's index number (which reflects its initialization sequence), and the logical interface's SNMP interface index number.
Flags	Information about the logical interface. Possible values are described in "Logical Interface Flags" on page 12.
Physical info	Information about the physical interface.
Link flags	Link flags—Information about the link. Possible values are described in "Link Flags" on page 11.
IP Header	IP header of the logical interface.
Encapsulation	Encapsulation on the logical interface.
Traffic statistics	Total number of bytes and packets received and transmitted on the logical interface. These statistics are the sum of the local and transit statistics. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
	Input rate—Rate of bits and packets received on the interface.
	Output rate—Rate of bits and packets transmitted on the interface.
Local statistics	Statistics for traffic received from and transmitted to the Routing Engine. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
Transit statistics	Statistics for traffic transiting the router. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
Filters	Name of the firewall filters to be evaluated when packets are received or transmitted on the interface. The format is Filters: Input: *input-filter-name*, Output: *output-filter-name*.
RPF Failures	RPF Failures: Packets: *xx*, Bytes: *yy*—The amount of incoming traffic (in packets and bytes) that failed a unicast Reverse Path Forwarding (RPF) check on this interface.
Destination class	List of the names of destination class usage (DCU) counters per family and per class for this interface. The counters display Packets and Bytes going to designated user-selected prefixes.
Source class	List of the names of source class usage (SCU) counters per family and per class for this interface. The counters display Packets and Bytes arriving from designated user-selected prefixes.
Policer	Policers to be evaluated when packets are received or transmitted on the interface. The format is Policer: Input: *type-fpc/pic/port*-in-policer, Output: *type-fpc/pic/port*-out-policer.

show interfaces (standard) (for GRE Interfaces)

```
user@host> show interfaces gr-3/1/0
Physical interface: gr-3/1/0, Enabled, Physical link is Up
  Interface index: 81, SNMP ifIndex: 76
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Input rate     : 0 bps (0 pps)
  Output rate    : 0 bps (0 pps)

  Logical interface gr-3/1/0.0 (Index 10) (SNMP ifIndex 341)
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:47:df:64:0000000000000000
    Encapsulation: GRE-NULL
  Input packets : 21
  Output packets: 22
    Protocol inet, MTU: 4446, Flags: None
      Addresses, Flags: Is-Preferred Is-Primary
        Destination: 10.10.0.0/30, Local: 10.10.0.1
    Protocol iso, MTU: 4446, Flags: None
```

show interfaces brief (for GRE Interfaces)

```
user@host> show interfaces gr-3/1/0 brief
Physical interface: gr-3/1/0, Enabled, Physical link is Up
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps

  Logical interface gr-3/1/0.0
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:47:df:64:0000000000000000
    Encapsulation: GRE-NULL
    inet  10.10.0.1/30
    iso
```

show interfaces detail (for GRE Interfaces)

```
user@host> show interfaces gr-3/1/0 detail
Physical interface: gr-3/1/0, Enabled, Physical link is Up
  Interface index: 81, SNMP ifIndex: 76, Generation: 80
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Hold-times     : Up 0 ms, Down 0 ms
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Statistics last cleared: Never
  Traffic statistics:
   Input  bytes  :                94093                  0 bps
   Output bytes  :                    0                  0 bps
   Input  packets:                 1034                  0 pps
   Output packets:                    0                  0 pps
```

```
Logical interface gr-3/1/0.0 (Index 10) (SNMP ifIndex 341) (Generation 25)
  Flags: Point-To-Point SNMP-Traps
  IP-Header 10.255.14.114:10.255.14.132:47:df:64:0000000000000000
  Encapsulation: GRE-NULL
  Traffic statistics:
   Input  bytes  :                    591
   Output bytes  :                    978
   Input  packets:                     15
   Output packets:                     16
  Local statistics:
   Input  bytes  :                    591
   Output bytes  :                    978
   Input  packets:                     15
   Output packets:                     16
  Transit statistics:
   Input  bytes  :                      0                    0 bps
   Output bytes  :                      0                    0 bps
   Input  packets:                      0                    0 pps
   Output packets:                      0                    0 pps
  Protocol inet, MTU: 4446, Flags: None, Generation: 45 Route table: 0
    Addresses, Flags: Is-Preferred Is-Primary
      Destination: 10.10.0.0/30, Local: 10.10.0.1, Broadcast: Unspecified,
      Generation: 41
  Protocol iso, MTU: 4446, Flags: None, Generation: 46 Route table: 0
```

show interfaces extensive (for GRE Interfaces)

```
user@host> show interfaces gr-3/1/0 extensive
Physical interface: gr-3/1/0, Enabled, Physical link is Up
  Interface index: 81, SNMP ifIndex: 76, Generation: 80
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Hold-times     : Up 0 ms, Down 0 ms
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Statistics last cleared: Never
  Traffic statistics:
   Input  bytes  :                  93558                    0 bps
   Output bytes  :                      0                    0 bps
   Input  packets:                   1021                    0 pps
   Output packets:                      0                    0 pps
```

```
Logical interface gr-3/1/0.0 (Index 10) (SNMP ifIndex 341) (Generation 25)
  Flags: Point-To-Point SNMP-Traps
  IP-Header 10.255.14.114:10.255.14.132:47:df:64:0000000000000000
  Encapsulation: GRE-NULL
  Traffic statistics:
   Input  bytes  :                    92
   Output bytes  :                   244
   Input  packets:                     3
   Output packets:                     4
  Local statistics:
   Input  bytes  :                    92
   Output bytes  :                   244
   Input  packets:                     3
   Output packets:                     4
  Transit statistics:
   Input  bytes  :                     0                         0 bps
   Output bytes  :                     0                         0 bps
   Input  packets:                     0                         0 pps
   Output packets:                     0                         0 pps
  Protocol inet, MTU: 4446, Flags: None, Generation: 45 Route table: 0
    Addresses, Flags: Is-Preferred Is-Primary
      Destination: 10.10.0.0/30, Local: 10.10.0.1, Broadcast: Unspecified,
      Generation: 41
  Protocol iso, MTU: 4446, Flags: None, Generation: 46 Route table: 0
```

show interfaces media (for GRE Interfaces)

```
user@host> show interfaces media gr-0/3/0
Physical interface: gr-0/3/0, Enabled, Physical link is Up
  Interface index: 14, SNMP ifIndex: 35
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Flags: Present Running SNMP-Traps
  Link flags: None, Physical info: IP-over-GRE
  Input rate      : 0 bps (0 pps), Output rate: 0 bps (0 pps)
```

show interfaces statistics (for GRE Interfaces)

```
user@host> show interfaces gr-0/3/0 statistics detail
Physical interface: gr-0/3/0, Enabled, Physical link is Up
  Interface index: 14, SNMP ifIndex: 35
  Type: GRE, Link-level type: GRE, MTU: Unlimited, Speed: 800mbps
  Clocking: Unspecified
  Flags: Present Running SNMP-Traps
Statistics last cleared: Never
  Traffic statistics:
   Input  bytes  :                     0                         0 bps
   Output bytes  :                     0                         0 bps
   Input  packets:                     0                         0 pps
   Output packets:                     0                         0 pps
  Input errors:
    Errors: 0, Drops: 0, Framing errors: 0, Runts: 0, Giants: 0
    Policed discards: 0
  Output errors:
    Carrier transitions: 1, Errors: 0, Drops: 0
```

```
Logical interface gr-0/3/0.0 (Index 10) (SNMP ifIndex 42)
  Flags: Point-To-Point SNMP-Traps
  IP-Header 192.168.4.253:192.168.4.18:47:df:32:00000000
  Encapsulation: GRE-NULL
  Traffic statistics:
   Input  bytes  :                    0
   Output bytes  :                    0
   Input  packets:                    0
   Output packets:                    0
  Local statistics:
   Input  bytes  :                    0
   Output bytes  :                    0
   Input  packets:                    0
   Output packets:                    0
  Transit statistics:
   Input  bytes  :                    0                      0 bps
   Output bytes  :                    0                      0 bps
   Input  packets:                    0                      0 pps
   Output packets:                    0                      0 pps

Logical interface gr-0/3/0.1 (Index 11) (SNMP ifIndex 43)
...
```